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10/538,008	06/03/2005	Tomoyoshi Yamashita	047991-5019	6861

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EXAMINER	
MAY, ROBERT J	

ART UNIT	PAPER NUMBER
2885	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,008	YAMASHITA ET AL.	
	Examiner	Art Unit	
	ROBERT MAY	2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites one of the planar surfaces close to the light output “has larger inclination angle" is indefinite because it does not distinctly claim in relation to what the angle is larger than.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore the following must be shown:

- the “non-single planar surface has both one or more planar surfaces and one or more convex curved surfaces", as required by Claim 7,
- a ratio (d/P) of a maximum distance (d) from the non-single planar surface to a virtual plane connecting a vertex and a bottom of each of the

elongated prisms to each other relative to a pitch (P) of the elongated prisms is 0.4 to 5% as required by Claim 12,

- the length of the pitch P of the elongated prisms is normalized to 1 in a cross section thereof, each of the elongated prisms shows in the cross section thereof the profile formed with use of the neighborhood points located within a circle of a radius of 0.021 centered at the corresponding points as to at least five points of the 16, 13 or 12 as required by Claims 14, 16 and 18,
- the profiles of the elongated prisms formed by connecting the adjacent two points of the 16, 13 or 12 points plotted by a coordinate system with the vertex of each prism being the origin and the pitch normalized to 1 as required by Claims 13, 15 and 17, and
- the "trough section" as required by Claim 19
- an edge line formed by the two prism faces of each of the elongated prisms is undulated by 0.018 to 0.354 relative to its base line as required by Claim 21,
- the two prism faces of each of the elongated prisms are undulated by 0.012 to 0.334 relative to their respective base planes as required by Claim 22

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14, 16 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite the limitation "the corresponding points" in line 6 of each of the claims. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita (6,011,602)

Regarding Claims 1 and 27-28, Miyashita discloses in Figure 15, a light deflector 213 having a light input surface for receiving incident light and a light output surface 213e for emitting incident light, the light output surface 213e being located on the opposite side to the light input surface, the light input surface having a plurality of elongated prisms 213p arranged in parallel to each other, each having two prism faces 213r and 213a,b, characterized in that at least one of the two prism faces is a non-single planar surface, and a vertex split angle of one of the prism faces which form each of the elongated prisms is 2 to 25 degrees (20 degrees Col 19, lines 14-16) and a difference between the vertex split angle q and the vertex split angle being 8 to 35 degrees (30-20 = 10 degrees).

Miyashita discloses the vertex split angle of the other prism face as being 30 degrees but fails to disclose it being within the claimed range of 33 to 40 degrees.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the vertex split angle of the other prism face to within 33-40 degrees to meet the particular directional illumination requirement, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only ordinary skill in the art. *In re Aller*, 105 USPQ 233.

Regarding Claim 2, Miyashita discloses the light deflector as claimed in claim I, wherein the vertex split angle is between 11 and 25 degrees (20 degrees).

Regarding Claim 3, Miyashita discloses in Figure 15 the light deflector 213 as claimed in claim 1, wherein one of the two prism faces is a non-single planar surface 213a, 213b and the other of the prism faces 213r is a single planar surface.

Regarding Claim 4, Miyashita discloses in Figure 17, a different embodiment where the angles are the same as Figure 15 (the angles are inclined at the angles described in embodiment 9 or Figure 15 Col 20, lines 25-30) where light deflector 230 as claimed in claim 1, wherein the non-single planar surface has at least a convex curved surface.

Regarding Claim 5, Miyashita discloses in Figure 17, the light deflector as claimed in claim 4, wherein the non-single planar surface has two or more convex curved surfaces 234a, 234b with different inclination angles.

Regarding Claim 6, Miyashita discloses in Figure 15, the light deflector 213 as claimed in claim 1, wherein the non-single planar surface 213a, 213b has two or more planar surfaces with different inclination angles.

Regarding Claim 7, Miyashita discloses in Figure 17, the light deflector 230 as claimed in claim 1, wherein the non-single planar surface 234 has both one or more planar surfaces 234c and one or more convex curved surfaces 234a, 234b.

Regarding Claim 8, Miyashita discloses in Figures 15 and 17 the light deflector as claimed in any one of claims 5 to 7, wherein, in the non-single planar surface, one of the planar surfaces or one of the convex curved surfaces positioned at the side close to the light output surface (surface 234c or 213b) has a larger inclination angle.

Regarding Claim 9, Miyashita discloses in Figure 15, the light deflector as claimed in claim 8, wherein, in the non-single planar surface, a difference between an inclination angle of one of the planar surfaces or one of the convex curved surfaces closest to a vertex of each of the elongated prisms and an inclination angle of the other of the planar surfaces or the other of the convex curved surfaces closest to the light output surface is 1 to 15 degrees (the angle θ3, is less than θ2 which is equal to 20 degrees, therefore the difference is within the claimed difference, Col 19, lines 45-50).

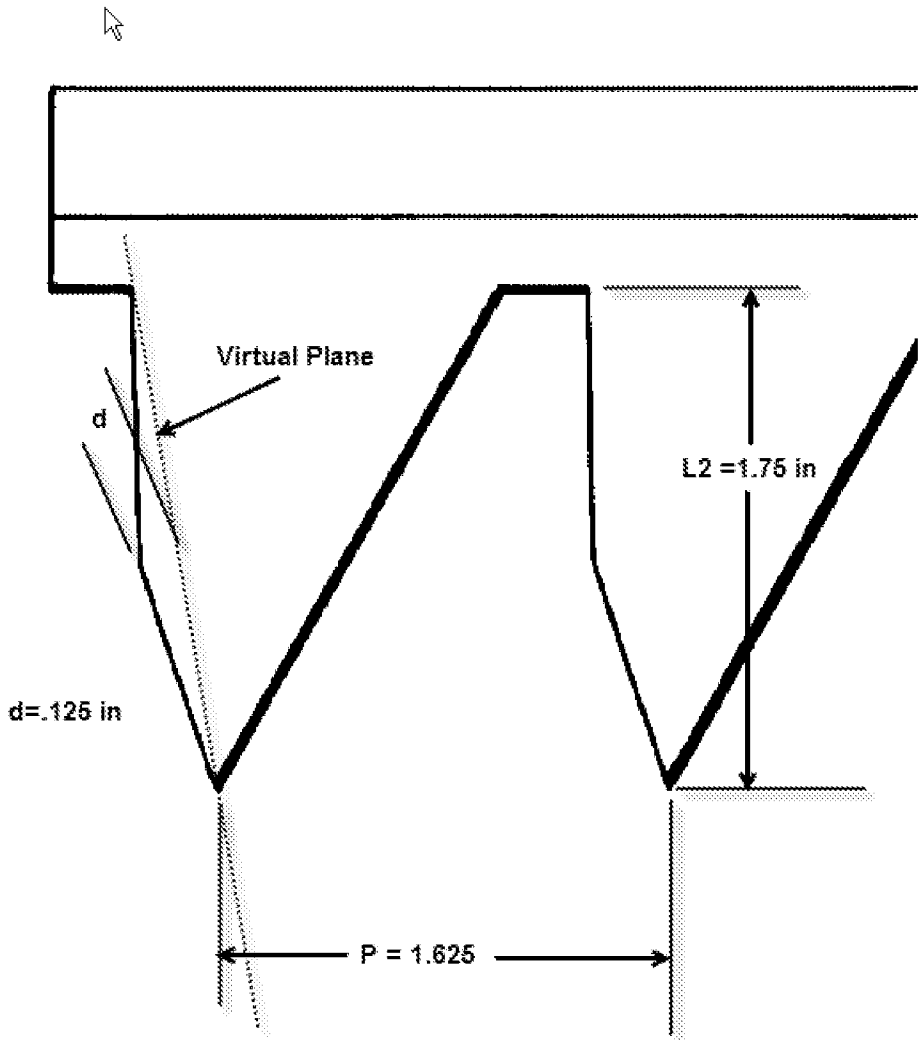
Regarding Claim I0, Miyashita discloses the light deflector 213, 230 as claimed in any one of claims 5 to 7, wherein a direction of peak in a distribution of light totally reflected by each of the planar surfaces and/or each of the convex curved surfaces of the non-single planar surface and emitted from the light output surface substantially

agrees with a normal direction of a plane on which the elongated prisms are formed (Col 19, lines 47-50).

Regarding Claim 11, Miyashita fails to explicitly disclose a ratio (r/P) of a radius of curvature (r) of each of the convex curved surfaces of the non-single planar surface relative to a pitch (P) of the elongated prisms is 2 to 50.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the radial dimension of the convex curved surface within a range accomplishing the (r/P) ratio as claimed to adjust the directionality of the light to meet the particular directional requirements of the apparatus , since it has been held by the courts that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device, and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Regarding Claim 12, Miyashita fails to discloses he light deflector as claimed in claim 1, wherein a ratio (d/P) of a maximum distance (d) from the non-single planar surface to a virtual plane connecting a vertex and a bottom of each of the elongated prisms to each other relative to a pitch (P) of the elongated prisms is 0.4 to 5% (instead discloses the d/P=7.6% see the annotated Figure 16 below)



It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the distance d in relation to the pitch P so that d/P lies within the range 0.4-5% as claimed to adjust the directionality of the light to meet the particular directional requirements of the apparatus, since it has been held by the courts that, where the only difference between the prior art and the claims was a recitation of

relative dimensions of the claimed device, and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Regarding Claims 13, 15 and 17, Miyashita fails to disclose the light deflector as claimed in claim I, wherein, if a coordinate system is adopted in a cross section of the elongated prisms in which a vertex of each of the elongated prisms is assumed to be an origin of the coordinate system and a length of a pitch P of the elongated prisms is normalized to i, each of the elongated prisms shows in the cross section thereof a profile formed by connecting in order the adjacent two of sixteen (16) , 13 or 12 points positioned according to the claimed coordinates or their neighborhood points to each other.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the dimensional attributes of the prisms to match the profile as traced out by the claimed points of a coordinate system with the origin at the vertex and the pitch of the prisms normalized to 1 in order to adjust the directionality of the light to meet the particular directional requirements of the apparatus , since it has been held by the courts that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device, and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In*

Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

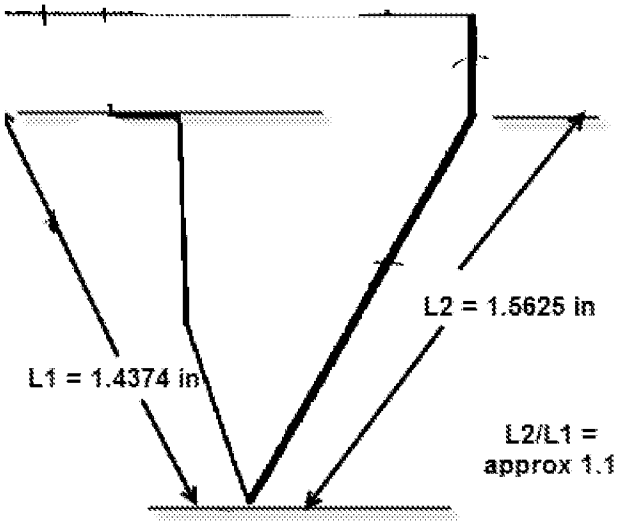
Regarding Claims 14, 16 and 18 the light deflector as claimed in claims 13, 15 and 17 respectively wherein, if the length of the pitch P of the elongated prisms is normalized to 1 in a cross section thereof, each of the elongated prisms shows in the cross section thereof the profile formed with use of the neighborhood points located within a circle of a radius of 0.021 centered at the corresponding points as to at least five points of the 16, 13 and 12 points respectively.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the dimensional attributes of the prisms with the neighborhood points located within a circle of radius of .021 centered at the corresponding points as claimed in order to adjust the directionality of the light to meet the particular directional requirements of the apparatus , since it has been held by the courts that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device, and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Regarding Claim 19, Miyashita discloses in Figure 16, the light deflector as claimed in claim I, wherein a pitch P of the elongated prisms and a length L2 of a virtual straight line connecting a vertex and a trough section of each of the elongated prisms to

each other in a cross section thereof as to one of the prism faces of the vertex split angle of each of the elongated prisms shows a relationship of L2 / P = 1.1 to 1.7 (L2 = 1.75 in and P = 1.625, therefore L2/P is approximately equal to 1.1, see the above annotated Figure 16).

Regarding Claim 20, Miyashita discloses in Figure 15, he light deflector as claimed in claim 1, wherein a length L1 of a virtual straight line connecting a vertex and a trough section of each of the elongated prisms each other in a cross section thereof as to one of the prism faces of the vertex split angle of each of the elongated prisms and a length L2 of a virtual straight line connecting a vertex and a trough section of each of the elongated prisms to each other in a cross section thereof as to the other of the prism faces of the vertex split angle ~ of each of the elongated prisms shows a relationship of L2 / L1 = 1.1 to 1.3 (see annotated Figure 15 below).



Regarding Claims 21-22 and 27-28, Miyashita fails to disclose the light deflector as claimed in claim i, wherein, if a length of a pitch P of the elongated prisms is normalized to I, an edge line formed by the two prism faces of each of the elongated prisms is undulated by 0.018 to 0.354 relative to its base line or base plane and the two prism faces of each of the elongated prisms are undulated by 0.012 to 0.334 relative to their respective base planes.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have an edge line formed by the two prism faces of each of the elongated prisms is undulated by 0.018 to 0.354 relative to its base line or have the two prism faces of each of the elongated prisms are undulated by 0.012 to 0.334 in order to adjust the directionality of the light to meet the particular directional requirements of the apparatus, since it has been held by the courts that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device, and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Regarding Claim 23, Miyashita discloses in Figure 15, a flat section arranged between adjacent elongated prisms 213p.

Regarding Claims 24-25, Miyashita fails to disclose the flat section as being vertically separated from the trough section by 2 to 10 microns or 0.035 to 0.18 when the pitch is normalized to 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to separate the flat section from the trough section by 2 to 10 microns or 0.035 to 0.18 with the pitch normalized to 1 in order to adjust the directionality of the light to meet the particular directional requirements of the apparatus, since it has been held by the courts that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device, and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Regarding Claim 26, Miyashita fails to disclose the light deflector as claimed in claim 23, wherein, if a length L2 of a virtual straight line connecting a vertex and a trough section of each of the elongated prisms to each other in a cross section thereof as to one of the prism faces of the vertex split angle of each of the elongated prisms is normalized to I, the flat section is arranged at a position vertically separated from the trough section of each of the elongated prisms by 0.022 to 0.16.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to separate the flat section from the trough section by 0.22 to 0.16 with the vertex split angle of each elongated prism normalized to 1, in order to adjust the directionality of the light to meet the particular directional requirements of the apparatus, since it has been held by the courts that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device, and a

device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

Regarding Claim 29, Miyashita discloses in Figure 15, a light source device comprising: a primary light source 210; a light guide 211 (Col 18, lines 25-67) having a light incident surface (vertical surface facing light source 210) for receiving light emitted from the primary light source 210, guiding an incident light and having a light emitting surface for emitting a guided light; and the light deflector 213 as claimed in any one of claims 1 to 7, 9 and 12 to 28 arranged with its light input surface located vis-&-vis the light emitting surface of the light guide 211.

Regarding Claim 30, Miyashita discloses in Figure 15 the light source device as claimed in claim 29, wherein the light deflector 213 is arranged with one of the prism faces 213a, 213b of the vertex split angle θ1 of each of the elongated prisms located close to the primary light source 210 and with the other of the prism faces 213r of the vertex split angle θ2 of each of the elongated prisms located remotely from the primary light source 210 (Col 19, lines 15-25).

Regarding Claim 32, Miyashita fails to disclose in the embodiments of Figures 15-17, a diffuser arranged adjacent to the light output surface of the light deflector.

Miyashita discloses in Figure 27, a light diffusion sheet 376 disposed adjacent the LCD 362 to uniformly distribute light across the display area. the recitation that a full width half maximum of a distribution of emitted light showing anisotropy when receiving

collimated Light is not afforded significant patentable weight absent any additional structural limitations and Miyashita is seen capable of performing this function.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a diffusion sheet adjacent the light emitting side of the deflector sheet to uniformly distribute the light entering a LCD.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita in view of Yamashita (2002/0163790).

Miyashita fails to disclose the light source arranged adjacent a corner section and the elongated prisms of the light deflector arranged substantially concentrically and centered at the primary light source.

Yamashita discloses in Figures 1 and 10, a light source 1 located adjacent a corner section and elongated prisms 5 of a deflector sheet 11 arranged concentrically and centered on a light source 1 (Para 0012-0013) to more efficiently utilize the light emitted from the light source in compact display systems for various electronic devices.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the light source arrange in a corner section with the prisms arranged concentrically and centered about the light source as taught by Yamashita to more efficiently utilize the light emitted from the light source in compact display systems for various electronic devices.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Oe (5,711,589), Arai (6,384,881) and Saito (5,890,791) disclose a backlight module with a prismatic deflector adjacent to a light guide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT MAY whose telephone number is (571)272-5919. The examiner can normally be reached on Mondays through Fridays 9am-12pm & 1-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RM
2/23/08

/Jong-Suk (James) Lee/
Supervisory Patent Examiner, Art Unit 2885